

### ABSTRACT

A wireless communication system includes a base station having a plurality of transmit antennas transmits pilot signals to a subscriber station. The subscriber station performs channel measurements on the signals received from the base station through at least two transmit paths and sends path characteristic information for each path to the base station. The base station uses the path characteristic information to determine how best to transmit data from the multiple transmit antennas to a single receive antenna at the subscriber station.

Through the use of pre-correction techniques, data signals are transmitted through the multiple transmit antennas such that signals received through the multiple transmit paths can be demodulated and decoded as a single signal.